

effect the establishment of a truly scientific Department of Agriculture in the island, with himself as its head. In connection with this enterprise, he had occasion to visit various Eastern establishments, among them that organised by the United States Government in the Philippines. While in Manila, he contracted a severe illness the effects of which he was unable to shake off on his return to Buitenzorg, and some time thereafter he was compelled temporarily to relinquish his charge. A sojourn of some months in the mountains of Java effected so much improvement in health that he was able to return to duty. But again his health gave way, and a little over a year ago he was reluctantly compelled to retire from the post he had filled with so much distinction for nearly thirty years. Under medical advice, he spent the winter in Egypt, and in spring went to live at Saint Raphaël, near Cannes.

His retirement was a source of unmixed regret to his colleagues in Java, because of the loss of his hand from the helm. To his many friends in Europe, however, the necessity did not present quite the same aspect; these looked forward to the double pleasure of renewed personal intercourse with Treub, and to that increased scientific activity for which his release from heavy official duties promised him opportunities.

This was not to be, and botanists throughout the world now mourn the loss of one of the ornaments of their science. To those who had the privilege of his personal friendship the blow is greater still. They have lost in Treub a brilliant, stimulating, and sympathetic colleague, one whose width of culture and charm of manner rendered intercourse with him a continual pleasure. Above all, they have lost a kind and constant friend.

DR. SIDNEY RINGER.

THE career of Dr. Sidney Ringer, which came to a close recently at Lasingham, Yorkshire, is a fine refutation of the common statement that the cares of medical practice do not permit of active scientific research in these days. Engaged in a large and successful consulting practice, and in teaching in a large medical school, he yet found time for much work in the advancement of pure science. His interests in medicine lay largely in therapeutics, in which his text-book remains authoritative, and his experimental researches appear to have arisen from the desire to put therapeutics upon a more secure foundation by investigating the effects of drugs on the animal organism. From 1870 to 1880 he published a number of papers dealing with the effect of various alkaloids and other drugs on animals, and these were continued at intervals in his later years. Many of these have been confirmed by later workers, and have taken their place in literature along with the work of the other founders of the modern pharmacological school. Among other subjects taken up at this time, the mutual antagonism exhibited by some of the alkaloids appears to have interested him in particular, and his experience with these probably influenced his later investigations.

From about 1880 Ringer struck out on a line of his own in his investigation of the inorganic salts of the blood and other tissues. At this time practically nothing was known of the biological significance of these, and their presence in the tissues was discounted in the physiology of the time. His investigations were so complete that the laboured investigations of a multitude of foreign observers in recent years have added little of fundamental importance. The essential feature which Ringer demonstrated was that while each of the salts induces abnormal conditions when applied alone to the tissues, each of them is necessary

for normal function; living matter requires inorganic salts, but these must be presented in certain proportions.

In particular, the special rôle played by lime salts in the economy of the tissues was first demonstrated by Ringer, and its antagonism to sodium and potassium was developed in a number of papers in the *Journal of Physiology*. The sodium and potassium in the body fluids has to be counteracted by lime, and such "balanced" solutions, when formed artificially, are harmless to living tissues, as he showed in a number of instances. The solution of salts introduced by him, and universally known by his name, is to-day to be found in every biological laboratory, and its use has led to developments in many fields of research. The work on which its composition is based has often received too little attention. This may be accounted for by the time at which it appeared: Ringer's work was done before the modern views of diffusion and dissociation of salts in solution found their way into biology. And the investigators who approached the study of the biological relations of the salts from the side of the new physico-chemistry appear to have overlooked the work of those who had investigated the subject without the aid of the newer methods. Quite recently, however, some amends have been made in this respect, and it is now recognised that the pioneer in this work had reached in essentials the same position twenty years ago as has now been attained generally.

From 1895 onwards, Ringer ceased active work in research, but his interest was unabated. Two years ago he might have been seen in his old place in the physiological laboratory at University College investigating some point which had attracted his attention. One cannot help regretting that he could not devote himself wholly to experimental research, in which he showed outstanding powers; but, on the other hand, his clinical work could ill have been spared by medicine. Few in these modern times have been able to combine such insight in the biological aspect of medicine with an equal eminence in practice. C.

NOTES.

ON Wednesday, October 19, Sir William Ramsay conducted Mr. Francis Fox, chairman (who first suggested the utilisation of the Trenwith Mine pitchblende), and the other directors of the British Radium Corporation over their works at Limehouse. From the ore, which comes from the Trenwith Mine at St. Ives, 550 milligrams of radium as bromide have already been extracted, as well as the uranium which it accompanies, practically without loss. In an account which appeared in the *Times* of October 20, the reporter is in error in stating that Cornish pitchblende is richer in radium than the Austrian ore; on the contrary, the constancy of the ratio between uranium and radium has been repeatedly confirmed. From inspection of the Trenwith Mine, there appears good reason to hope that the present supply will be maintained, if not exceeded. The productive capacity of the works at Limehouse is about 100 milligrams a week.

A REUTER message from Stockholm states that this year's Nobel prize for medicine has been awarded to Prof. Albrecht Kossel, professor of physiology in the University of Heidelberg. Each prize will amount on this occasion to 7734l.

It is proposed to hold in Paris next spring an international exhibition concerned with agriculture, oysterculture, and fisheries. The organising committee has its office at 161 rue Montmartre, Paris.

THE Royal Society informs us that the studentship on the foundation of the late Prof. Tyndall for scientific research on subjects tending to improve the conditions to which miners are subject has been awarded for the ensuing year to Dr. T. L. Llewellyn, of Bargoed, Wales, for research regarding the cause and cure of the disease in miners known as nystagmus.

DR. BÁTHORI, writing from Nagybecskerek, Hungary, informs us that the Hungarian Academy of Science has this year awarded the Bólyai prize, of the value of 10,000 crowns, to Prof. David Hilbert, university professor of mathematics at Heidelberg. The jury consisted of two foreign mathematicians—Poincaré (to whom the prize was awarded in 1905) and G. Mittag-Leffler—and two Hungarians, Y. König and G. Rados, both from Budapest.

News has been received from Italy of considerable damage wrought in the island of Ischia, accompanied by loss of life, due, in the first instance, to what is described as a cloud-burst. A hurricane has been referred to in the meagre accounts which have as yet reached this country, and from the local character of the phenomenon it seems likely that it was of the nature of a tornado, with torrential rain. The disaster occurred during Sunday night and Monday morning, October 23–24. The *Paris Bulletin International* for Monday, October 24, makes no mention of the disturbance, and contains nothing apparently associated with the occurrence except that at Naples the rainfall, measured at 7 a.m. for the preceding twenty-four hours, was 1.30 inches, and at Rome 0.87 inch. At Naples a further rainfall of 1.28 inches for the twenty-four hours ending October 25 is recorded in the *Paris Bulletin*, making the aggregate fall in forty-eight hours 2.58 inches. At Cette, in the south of France, 3.11 inches of rain fell in the twenty-four hours ending 7 a.m. October 25.

EARLY in November the University of Leyden proposes to celebrate the eightieth birthday of Prof. J. D. van Bemmelen. Prof. van Bemmelen was born on November 3, 1830, and has been engaged in scientific work since 1856. He has contributed greatly to the foundation of the Dutch school of physical chemistry. Prof. H. A. Lorentz, of Leyden, is the chairman of the committee organising the celebration, and Dr. W. P. Jorissen the secretary. It is proposed to publish as a memorial of the celebration a collection of memoirs by fellow-workers on the subjects with which Prof. van Bemmelen's name is associated, and already some sixty have been received. The memoirs will be published in one volume by M. C. de Boer Junior, Helder, Holland.

THE annual general meeting of the Institute of Metals will be held at the Institution of Mechanical Engineers, Storey's Gate, Westminster, S.W., on Tuesday and Wednesday, January 17 and 18, 1911. At this meeting a number of papers will be presented, including some of an essentially practical character, together with the preliminary report to the corrosion committee. It will be remembered that this committee was appointed some months ago to investigate cases of corrosion of the non-ferrous metals. The preliminary report will show the present state of our knowledge of the corrosion of non-ferrous metals and alloys, and will contain suggestions for a research into the causes of the corrosion by sea water of brass condenser tubes. The institute has now been founded just two years, and has celebrated its birthday by becoming an incorporated institution.

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SPEAKING at the inaugural meeting of the Oxford branch of the Research Defence Society on Monday, Lord Cromer gave a number of instances of the value of research in medicine. In the course of his remarks he said:—Step by step the micro-organism of all the principal diseases—relapsing fever, leprosy, typhoid, tuberculosis, cholera, diphtheria, tetanus, influenza, plague, and dysentery—has been tracked to its lair. There is so great a wealth of evidence to show the results already achieved that it is difficult to decide which subject to mention particularly. The case of plague may, however, be taken as an example. When this terrible disease broke out in India some fourteen years ago a panic ensued. Vast sums of money were spent on disinfectants and other perfectly useless remedies. All was in vain. The epidemic continued to ravage whole districts. Then science took the matter up. The connection between the plague and the prevalence of rats was noticed. The fact that the rat flea, and not the rat itself, was the propagator of the disease was established. The anti-plague vaccine was discovered by Mr. Haffkine—but it took some years of observation before all these results could be obtained. When they were obtained science at last reaped its proud and well-merited reward. Colonel Bannerman, a distinguished Indian bacteriologist, said that in a number of cases in the Punjab, the aggregate population of which is about 827,000, some 187,000 were inoculated four months before the plague appeared, and that some 640,000 were not inoculated. Only 314 deaths occurred amongst the inoculated, while no fewer than 29,723 occurred amongst those who had not been inoculated. In other words, it may be said that experimental science saved the lives of about 8000 human beings, and those lives would not have been saved had it not been for the series of experiments conducted on living animals.

IN the Harveian oration delivered before the Royal College of Physicians of London on October 18, Dr. H. B. Donkin discussed "Some Aspects of Heredity in Relation to Mind." He pointed out that the hypothesis of hereditary criminality lacks substantiation, though "a considerably larger minority of persons with clearly appreciable mental defect, apparently of congenital nature, is found among convicted criminals than in the population at large." It cannot be assumed that the criminal is a racial "degenerate." In inquiring into the causation of "congenital" mental defect, Dr. Donkin retained a severely sceptical position. In some cases a lineal sequence of defectives is sufficiently frequent to render it highly probable that this condition is truly innate, and thus transmissible; in other cases it may be an indirect result of malnutrition and the like in the parent; and there are other possibilities. Dr. Donkin laid emphasis on the difficulty of making sure whether mental and moral characters are inborn or "acquired," but it may be pointed out that his view of the distinction is not exactly that held by most biologists. In regard to the inheritance of mental qualities, he followed Sir Ray Lankester in attaching great importance to "educability." "The innate and transmissible factor of the mind of man is the organic potentiality for making mental acquirements." He did not, however, enter into a discussion of the hereditary reappearance of distinctive mental traits, and we venture to point out that his identification of mental acquirements and modifications will not commend itself to biologists who care for precision. A very interesting feature in the oration was the collection of some of Harvey's observations on heredity, in which Dr. Donkin was inclined to detect an "inkling of the great question regarding 'inherited' and 'acquired' characters."

At the Royal Society of Medicine on October 21 Dr. Franz Nagelschmidt gave a demonstration on "The Thermal Effects produced by High-frequency Currents." D'Arsonval directed attention, twenty-five years ago, to the "disagreeable burning sensation" that invariably accompanies the application of high-frequency currents. In the apparatus now shown this thermal effect is specially encouraged. Instead of the very high voltage (upwards of 100,000 volts) used in the ordinary forms of high-frequency application, the apparatus for diathermy gives about 800 volts, but the current which actually traverses the body reaches as much as $2\frac{1}{2}$ amperes. Stronger currents have been employed, but are not, in Dr. Nagelschmidt's opinion, free from danger. The demonstrator placed two circular electrodes at opposite sides of a piece of raw liver, and showed how the passage of the current produced a solid column of coagulated liver, the borders of which were strictly limited by the diameter of the electrodes, the portions of liver immediately outside the cylindrical coagulated block remaining quite unaffected. The sharply limited action of the current was demonstrated even more graphically by means of a solution of white-of-egg contained in a glass trough. In this case, when the electrodes were placed near opposite ends of the trough, a column of coagulated albumin could be seen to form between them, and if a small current (0.5 ampere) were used the coagulation commenced, not at the electrodes, but at a point midway between them, and extended thence to the electrodes. The practical applications of this current were described, and it was shown how masses of diseased tissue (such as cancers) could be removed without loss of blood and without fear of damaging contiguous parts. Apart from this, many forms of localised pain could be relieved in a few minutes by applying an electrode to the area of skin overlying the painful region. Several other possible therapeutic uses of the diathermal currents were mentioned, including the power of these currents to strengthen and accelerate the heart's action. The high-tension current is obtained by a motor generator giving alternating current. The current to be applied to the patient is easily regulated from a switch table.

LIEUT. COLONEL L. A. WADDELL, one of the leading authorities on the literature of Tibet, has deposited in the library of the India Office about one thousand books and manuscripts collected by him during the last expedition to Lhasa. These include a remarkable collection of ancient anatomical drawings from the Temple of Medicine at Lhasa, which preserve in pictorial form the old-world Indian beliefs regarding the structure and functions of the internal organs of the body. Much of this Indian surgical lore is probably of Greek origin, but the routes by which it may have reached India have not been clearly traced. This Tibetan series of drawings is believed to have reached Lhasa in the eighth century A.D. The collection will prove of much interest to students of Oriental surgery.

The prehistoric boat discovered at Brigg, Lincolnshire, in 1886, formed the subject of a law-suit, the result of which was that it was awarded to Mr. Cary-Elwes, Lord of the Manor, who has now presented it to the Hull Museum. It is in a rather dilapidated condition, but has been repaired, so far as possible, under the supervision of the curator, Mr. T. Shepherd. In his useful series of museum manuals he has now given full details of the discovery, with various drawings and photographs illustrating this remarkable exhibit. To this is appended a bibliography, which shows that few objects of antiquity

discovered in this country have given birth to a more extensive literature.

In a supplement to the Annals of the Transvaal Museum Messrs. Gunning and Haagner have published a check-list of the birds of South Africa, based on Reichenow's "Vögel Afrikas," but bringing the subject up to date. The Zambezi-Cuneni line (lat. 16° S.) is taken as the boundary of the area, in which 919 species are recognised.

To the Annals of the Transvaal Museum for February Mr. J. Hewitt contributes an article on the zoological region of South Africa as deduced from the composition of its Lacertilia. After mentioning that the Zambezi-Cuneni line does not form a natural zoological boundary, as there is an extensive overlap of the southern and tropical faunas, the author expresses the opinion that the southern districts of Africa possess a fauna sufficiently peculiar to entitle this area to be regarded as a distinct zoological region, divisible into several subregions. "As regards the entity of the South African region as a zoological area, there can be no doubt but that the distinction between the peculiar endemic fauna of southern Africa and tropical Africa is too pronounced to permit of our regarding the South African region as merely a province of the large Ethiopian area, and, indeed, but for the infiltration of tropical forms, no one would hesitate to unite South Africa with Madagascar as a region quite distinct from the more northern parts of Africa. But the question of the northern boundary of our area is quite another matter." The author's conclusions seem to be entirely based on reptilian and amphibian evidence.

GREAT interest attaches to a paper by Mr. G. E. Pilgrim in vol. xl, part i., of the Records of the Geological Survey of India on new genera and species of mammals from the Indian Siwaliks, chiefly, it seems, those of the Punjab and Bugti Hills. Among numerous other forms, special reference may be made to *Sivapithecus indicus*, a new generic type based on the last lower molar of an anthropoid, which agrees in size and general form with the corresponding tooth of the gorilla, but has lower cusps and no cingulum. Upper and lower jaws indicate a second new anthropoid, referred to the European genus *Dryopithecus*. If rightly assigned to *Moeritherium*—and the reference is only provisional—a small and primitive proboscidean molar from the Bugti Hills apparently indicates a migration of the ancestors of the elephant-group from northern Africa to north-western India. From a phylogenetic point of view, perhaps the most interesting of all the new "finds" is the genus and species described as *Dorcabune anthracotheroides*. This species, according to Mr. Pilgrim, "shows the most extraordinary mingling of traguloid and anthracotheroid characters. Its upper molars may be described as like those of a *Dorcatherium*, only of an extreme bunodont and brachyodont type. . . . The same type of structure is displayed in the lower teeth, which, however, differ less, qualitatively, from *Dorcatherium* than the upper ones. . . . On the whole, the genus may be appropriately placed in the Tragulidae."

THE determinations of a small collection of plants gathered by Dr. Th. Derbeck on the shores of the Gulf of Tartary, near the mouth of the Amur, are communicated by Mr. V. L. Komaroy to the *Bulletin du Jardin impérial botanique*, St. Petersburg (vol. x., part iv.). A characteristic littoral formation was prevalent, in which *Elymus mollis*, *Rosa rugosa*, and *Poa glumaris* were conspicuous. Two new species are created in *Leontopodium tataricum* and *Saussurea Derbecki*. The list of 158 plants affords an interesting comparison with the flora of Saghalien.

A SHORT article communicated to the *Gardener's Chronicle* (October 22) by Mr. H. S. Thompson on botanising in County Kerry will interest the keen field botanist. Mt. Carrantal, the highest peak in Ireland (1041 metres), and a noted locality for Alpine plants, was the chief centre of attraction. The discovery of *Juncus trifidus* near the summit practically establishes a new record, and *Sieglingia decumbens* was also collected at an elevation above 1000 metres. Lower down, the two closely related species or varieties, *Saxifraga decipiens* and *S. Sternbergii*, were found in company with *S. stellaris*. Another find of great rarity was supplied by *Sisyrinchium angustifolium* growing with *Drosera*, *Lobelia Dortmanna* and bog *Asphodel* by Lough Caragh.

THREE generic revisions are published in vol. xlv. of Engler's *Botanische Jahrbücher*: Dr. M. Burret discusses the relationships and distribution of African species of *Grewia*, Dr. W. Moeser amplifies a former collation of the genus *Helichrysum* in Africa, and Dr. Heinz Stiefelhagen contributes an account of the genus *Scrophularia* preparatory to the compilation of a monograph. The last survey of the genus *Scrophularia* was prepared by Benthams for De Candolle's *Prodromus*, since which time the species have almost doubled in number, mainly owing to plants collected in Persia, China, and Tibet. The author is of opinion that the genus is in an early stage of development. He fails to find a natural group character in the absence of a staminode, and bases his primary divisions on the habit, i.e. whether the plants are herbaceous or shrubby with well-developed leaves or xerophytic undershrubs with scanty leafage.

A SKETCH of the flora and plant formations of the Kermadec Islands, contributed by Mr. R. B. Oliver to the *Transactions of the New Zealand Institute* (vol. xlii.), is the outcome of a visit for eleven months to Sunday Island and flying visits on the way home to the three smaller islands. Several species are added to the flora, bringing up the total to 114 ferns and flowering plants. The author makes a new species of a smooth-stemmed lofty tree fern, *Cyathea kermadecensis*, separating it from another endemic species, *C. Milnei*, that has a short, rough stem. The forest formations are the most extensive and important. The dry forest shows three tiers of vegetation; the topmost consists almost entirely of trees of *Metrosideros villosa* about 60 feet in height; smaller trees such as *Rapanea kermadecensis*, *Myoporum laetum*, the palm *Rhopalostylis Baueri*, and *Cyathea Milnei* form the next tier, while *Pteris comans* supplies the ground vegetation in many districts. The other *Cyathea*, characteristic of wet zones, in one locality forms a forest as lofty as the *Metrosideros*. The author proposes to include the Kermadecs, with Lord Howe and Norfolk Islands, in a "subtropical islands' province" of the New Zealand region.

THE *Rassegna Contemporanea* for September contains two articles of scientific interest. One is the speech given by Cannizzaro at the complimentary banquet at Rome on the occasion of his receiving the Copley medal of the Royal Society, a copy having been preserved along with his copious scientific and political correspondence. A photograph of part of the manuscript is also reproduced. Another article, by Riccardo Dalla Volta, deals with the International Agricultural Institute recently founded to collect agricultural statistics on an international basis. There is a useful field of work in this direction. The methods of collecting statistics and of crop reporting vary considerably in different countries, and any organisation that makes for greater uniformity is to be welcomed.

THE Agricultural Department of the Transvaal is continually suggesting new crops and new industries to farmers, and in a recent issue of its *Journal* (vol. viii., No. 32) one of its experts discusses the possibility of raising ostriches. The best feathers are only produced when the birds are sufficiently nourished, and a good supply of food is therefore necessary. Lucerne is so valuable a food that wherever it can be grown the birds may be expected to thrive; about 40 lb. of the green crop or 10 lb. of the hay is taken by an ordinary ostrich weighing from 250 to 300 lb. If maize or other concentrated food can be supplied less lucerne becomes necessary, and a larger number of birds can be kept on a given area. A number of districts are indicated where ostriches might be expected to do well.

IN the meteorological chart of the North Atlantic Ocean for November, published by the U.S. Weather Bureau, Prof. W. L. Moore points out that this month marks the beginning of the stormy season over the Transatlantic routes. For the purpose of illustrating the general behaviour of the storms, instructive synoptic weather charts are drawn for each day from November 11-16, 1909, inclusive, showing a typical case. The storm in question originated in high northern latitudes, and moved in a more or less easterly direction from Newfoundland to the north-east of the Azores. The chart for November 16 shows that the barometric depression had deepened and increased in size until the entire eastern part of the ocean was affected by the storm area. It also shows that a second barometric depression, apparently an offshoot of the central system, had formed about 500 miles north-westward of the Azores, which gave rise to severe weather along the northern shipping routes. Its approach to the British Islands seems to have been checked by the high-pressure system prevailing there.

SNOWFALL in the Transvaal is a somewhat exceptional occurrence; so far as can be ascertained, there have been only eleven years out of the last fifty-seven (1853-1909) in which it has been recorded. On two occasions, 1903 and 1904, the falls were very slight, and none was experienced during 1905-8 inclusive. The *South African Journal of Science* for September contains an interesting article on the subject by Mr. H. E. Wood, of the Transvaal Meteorological Service, with special reference to the heavy storm of August 16-18, 1909. Although a rather heavy fall occurred at Johannesburg in May, 1892, the fact of the town being covered to a depth of several inches on the morning of August 17 was such an unusual event, especially for the younger generation, that the day was celebrated as a general holiday. The maps of the distribution of atmospheric pressure show that the snowfall was associated with the rapid approach of a high-pressure system towards a region over which low pressure had previously existed. In the author's experience it has always been found that any widespread rainfall over eastern South Africa is connected with a rising barometer.

PROF. A. PIUTTI has sent us an abstract of a paper by him, read before the Royal Academy of Naples, on the absorption of helium in salts and minerals. Prof. Piutti has been able to detect helium in the gases extracted from borax and other salts, which have been melted and then suddenly chilled while a current of air has been bubbling through them. This experiment he regards as throwing doubts on Prof. Strutt's conclusions on the measurement of geological time from radio-active data. It is urged that helium may have been absorbed by the molten material of the igneous minerals, either from the atmo-

sphere or from gases existing in the interior of the earth, and that similar processes may even have occurred in the sedimentary rocks.

THE third part of *Terrestrial Magnetism and Atmospheric Electricity* for the present year contains two valuable tables of corrections to the British Admiralty, the German Admiralty, and the United States Hydrographic Department magnetic charts of the North Atlantic, by Dr. L. A. Bauer and Mr. W. J. Peters, based on the observations made by the magnetic ship *Carnegie* during her recent cruise. Over almost the whole area the three charts show too low values for the west magnetic declination, the error being generally less than a degree, but in some cases it is nearly 3° . As the error is in the same direction for 5000 miles, it may result in a serious error in the position of a vessel at the end of a voyage. The corrections to the dip are not always of the same sign; their average magnitude is nearly 2° , and the actual amount in one case exceeds 4° . Over most of the region the values of the horizontal intensity given in the charts are too high by 8 units in the third decimal, C.G.S. units.

A NEW electric generating station was opened on October 12 at the Northampton Polytechnic Institute. The plant was supplied by Messrs. Siemens Brothers Dynamo Works, Ltd., chiefly for instructional purposes as an example of the latest ideas in central station practice, and comprises electrical apparatus for alternating- and for continuous-current working. The buildings of the polytechnic are sufficiently large to present experimental facilities on an engineering scale for most of the problems which have to be handled in larger stations. It is intended to run the station on a thoroughly commercial basis; the coal, wages, and other expenses will be strictly charged up, and every unit of electrical energy supplied for the purposes of the work of the polytechnic will be metered regularly and sold to it. The senior students, with the help of the technical staff, will take charge of this work. The main features of the plant are two gas-driven sets, each consisting of one continuous-current generator and one high-voltage alternator in tandem. The polytechnic authorities have issued for the use of intending students and others a full and well-illustrated description of the details of the whole plant, including gas-engines, suction gas-producer plants, alternators, motor-generator set, switchboards, transformers, and so on.

COMMENTING on the *Atlantic* airship voyage, the *Engineer* for October 21 does not pretend to any regret that the attempt has been an unqualified failure. Nothing of any value could have been expected from such a voyage arranged for spectacular purposes only. Enough, and more than enough, has been done to make the conquest of the air spectacular. If flight in its varied forms is to rise above the level of a mere sport, it is time that a little steady humdrum, useful work was entered upon, and that the praise of the public and the winning of prizes were forgotten. Much remains to be done, and it is well that it should be done steadily and scientifically by honest spadework, and not under the glamour of popular sensationalism.

THE successful launch of the White Star liner *Olympic* at Belfast on October 20 gives occasion for a long illustrated article in *Engineering* for October 21. With a total weight of 27,000 tons, it can be understood that very careful provision had to be made to ensure the successful floating of the ship. The standing ways were about 800 feet long and the sliding ways about 700 feet long. The ship overhung the cradle aft to the extent of

80 feet, and forward to about 50 feet. The average pressure on the ways was only just above 3 tons per square foot. The declivity of the ways forward was $\frac{3}{8}$ -inch per foot, and aft $\frac{1}{2}$ -inch per foot. On the occasion of the launch the weather was perfect, with a slight stern wind. The pressure on the hydraulic ram of the trigger arrangement was 435 tons, and on this being released the ship moved at once, the hydraulic starting jacks not being used. The time taken was sixty-two seconds, and the maximum speed attained was $12\frac{1}{2}$ knots. When brought to rest, the bow of the vessel was 500 feet from the end of the ways. Messrs. Harland and Wolff deserve most hearty congratulations on their success, this success being due, in a large measure, to the minuteness and precision with which every detail connected with the operation had been anticipated.

A BOOK on "English Philosophy," by Mr. Thomas M. Forsyth, is shortly to be issued by Messrs. A. and C. Black. Its aim is to give an outline of the development of English philosophy from Bacon to the present day.

ERRATUM.—The author of the review of Prof. Seward's "Fossil Plants" in *NATURE* of October 20 writes:—"May I point out a slip, for which I am responsible, in my review? On p. 491, column 1, Arber and Parkin should be Arber and Thomas."

OUR ASTRONOMICAL COLUMN.

A BRILLIANT METEOR ON OCTOBER 23.—Mr. W. F. Denning writes:—"A splendid meteor was seen by Mr. J. E. Clark at Purley, Surrey, on October 23, at 8h. $12\frac{1}{2}$ m. It shot slowly from $52^\circ+34'$ to $72^\circ+40'$, and left a streak for six seconds. The flight was directed from a radiant in the head of Aries, and the duration was four seconds. From Lincolnshire and the eastern counties the meteor must have appeared a magnificent object, and further descriptions of its apparent course will be very useful to aid in determining the real path above the earth."

SIMULTANEOUS PHOTOGRAPHIC OBSERVATIONS OF A REMARKABLE METEOR.—Herr Sykora, in No. 4447 of the *Astronomische Nachrichten*, gives particulars of the path of a bright meteor, of which the trail was photographed at three different stations, Taschkent, Iskander, and Tschimgan, on August 11, 1909. The brightness of the meteor varied considerably during the flight, and as the knots and outbursts are similarly shown on all three photographs, it has been possible to determine the heights at which they occurred. The first part of the trail, then very faint, began at 112 km., and suddenly brightened up at 97.7 km.; then there were marked outbursts at 88 and 85 km. respectively, with a sudden falling off at 83 km. At 81 km., however, a sudden recalcrescence occurred, and final extinction took place at 80.7 km. The radiant was found to lie in the position $\alpha=44.0^\circ$, $\delta=+56.9^\circ$.

TWO REMARKABLE PROMINENCES.—No. 2, vol. xxxii., of the *Astrophysical Journal* (September, p. 125) contains a note, by Dr. F. Slocum, describing two remarkable prominences photographed with the Yerkes spectroheliograph during March and April.

One of these was remarkable for the lengthy period of its existence, the other for its extreme activity and brief existence. The former was first seen disappearing over the western limb of the sun on March 4, but reappeared, larger and transformed, on March 16; it was last photographed on April 28. On March 18 the prominence extended from latitude -20° to $+25^\circ$, and its longitude was about 70° ; throughout its existence, of probably about 55 days, the southern limit was practically constant, but the northern limit varied considerably. The recorded apparent height varied between 77,000 km. (March 18) and 12,000 km. (April 1); when last photographed (April 28) the height was 61,000 km., but prominence plates secured on May 11, 12, 13, and 14 showed no trace